	-3	-2	-1	0	1	2	3
3	0.083	0.887	1.634	1.943	1.634	0.887	0.083
2	0.887	2.289	3.59	4.129	3.59	2.289	0.887
1	1.634	3.59	5.406	6.159	5.406	3.59	1.634
0	1.943	4.129	6.159	7	6.159	4.129	1.943
1	1.634	3.59	5.406	6.159	5.406	3.59	1.634
2	0.887	2.289	3.59	4.129	3.59	2.289	0.887
3	0.083	0.887	1.634	1.943	1.634	0.887	0.083

$$f(x,y) = 8e^{\frac{-x^2-y^2}{9}}$$

	-3	-2.5	-2	-1.5	-1	-0.5	0	0.5	1	1.5	2	2.5	3
3	0.083	0.47	0.887	1.292	1.634	1.862	1.943	1.862	1.634	1.292	0.887	0.47	0.083
2.5	0.47	0.995	1.561	2.111	2.575	2.885	2.995	2.885	2.575	2.111	1.561	0.995	0.47
2	0.887	1.561	2.289	2.995	3.59	3.989	4.129	3.989	3.59	2.995	2.289	1.561	0.887
1.5	1.292	2.111	2.995	3.852	4.575	5.06	5.23	5.06	4.575	3.852	2.995	2.111	1.292
1	1.634	2.575	3.59	4.575	5.406	5.963	6.159	5.963	5.406	4.575	3.59	2.575	1.634
0.5	1.862	2.885	3.989	5.06	5.963	6.568	6.781	6.568	5.963	5.06	3.989	2.885	1.862
0	1.943	2.995	4.129	5.23	6.159	6.781	7	6.781	6.159	5.23	4.129	2.995	1.943
-0.5	1.862	2.885	3.989	5.06	5.963	6.568	6.781	6.568	5.963	5.06	3.989	2.885	1.862
-1	1.634	2.575	3.59	4.575	5.406	5.963	6.159	5.963	5.406	4.575	3.59	2.575	1.634
-1.5	1.292	2.111	2.995	3.852	4.575	5.06	5.23	5.06	4.575	3.852	2.995	2.111	1.292
-2	0.887	1.561	2.289	2.995	3.59	3.989	4.129	3.989	3.59	2.995	2.289	1.561	0.887
-2.5	0.47	0.995	1.561	2.111	2.575	2.885	2.995	2.885	2.575	2.111	1.561	0.995	0.47
-3	0.083	0.47	0.887	1.292	1.634	1.862	1.943	1.862	1.634	1.292	0.887	0.47	0.083

$$f(x, y) = 8e^{\frac{-x^2-y^2}{9}}$$

Written Answers to Discussion Questions:

- **Suppose we wanted to increase the resolution of our image by a factor of two in both the x and the y directions. How many pixels would your new image use?**
  - *This would use* $13 \times 13 = 169$ *pixels (double-1, as we add half-boxes between each previous box). This gives us* $169 - 49 = 120$ *new pixels to calculate.*
- **Compare this with how many new calculations you'd have to do to draw the $y = 0$ trace?**
  - *To draw the* $y = 0$ *trace with double the resolution, we'd only need to do 13 calculations in total, much more feasible than 169 calculations!*
- **Compare and contrast graphing functions of one variable and two variables. What takes more work? What produces cooler graphs? Why does one take more work than the other?**
  - *One variable is easier than two because you only need to sample* n *points to form a "complete image", where with two variables, you need to sample* n^2 *points to get an equivalent resolution. Two-dimensional images are cooler because they can contain much more information and have much more interesting shapes.*
- **Now, imagine you need to build an "image" with a resolution of 1920x1080px. (aka "Full HD" or "1080p") How many pixels are contained in this image? Do you think it's feasible to do this "by hand", using our method?**
  - *This will contain* $1920 \times 1080 = 2.0736 \times 10^6$ *pixels. I would not want to do this by hand, or even have Excel do the computations, as even entering the axes labels or copying the formulas would be very tedious.*
- **Compare your plot with those that Wolfram Alpha generates. Does your plot somewhat resemble their plots?**
  - *Yes. Our plot(s) compare favorably to those Wolfram Alpha generated. Ours don't have as much resolution, but they tell us information about the shape of our function.*